Occult Hepatitis B Virus Infection With Increased Virus DNA Levels in a Chronic Hemodialysis Patient

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Occult Hepatitis B Virus Infection with increased DNA level in a Chronic Hemodialysis Patient.

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Dear Editor,

Hepatitis B virus (HBV) infection is an important issue for infectious control in dialysis hospitals. Occult HBV infection (OBI) is defined as the presence of HBV genome in serum or liver tissue without detectable hepatitis B surface antigen (HBsAg). The prevalence of OBI in Japanese chronic hemodialysis patients was 0.3% in previous report (1). They were isolated anti-hepatitis B core antibody (anti-HBc) pattern; negative anti-hepatitis B surface antibody (HBsAb) and positive anti-HBc, and detected serum HBV-DNA under quantitative sensitivity: 2.1 Log copies/mL (20 IU/mL). We herein report an OBI patient under dialysis with increased serum HBV-DNA level.

CASE REPORT

An 86-year-old female initiated hemodialysis 6 years ago due to end-stage kidney disease caused by nephrosclerosis. She was affected with colon cancer in 65 years old and lung cancer in 84 years old, and they were treated with complete resection. She did not need chemotherapy nor radiation therapy, and she has never received blood transfusion in her life. She transferred to our hospital 4 years ago. In the infectious screening tests, HBsAg, HBsAb, anti-hepatitis C virus antibody, anti-human immunodeficiency virus antibody were negative and anti-HBc was positive with low level (10.2 S/CO). Aspartate aminotransferase (AST) and alanine aminotransferase (ALT) were 13 U/L and 6 U/L, respectively. Computed tomography and ultrasonography showed almost normal images. Her liver findings have kept almost normal. Because the number of hemodialysis patients in our hospital exceeded 300 and the prevalence of OBI is 0.3%, we checked serum HBV-DNA by real-time polymerase chain reaction (PCR) test for the patients with positive for HBsAb or anti-HBc. In the HBsAg negative patient group, HBV-DNA was not detected except for her. Her HBV-DNA level was 2.6 Log copies/mL (68 IU/mL). She has continued hemodialysis without any symptoms and abnormal laboratory tests for 6 months after OBI diagnosis. To prevent horizontal HBV transmission in hospital, we fixed her bed and console, and keep routine check for viral infections.

DISCUSSION

The serological pattern of OBI includes cases of acute HBV infection in the window period and HBV reactivation in immunosuppressive therapy, which lead to severe hepatitis. Because our patient has never had hepatitis findings, she was supposed to get infected in the old days.

In general, after disappearance of HBsAg, HBsAb persists for life and confers long-term immunity. Interestingly, as far as we know, all reported HD patients of OBI were negative for HBsAb (1–3) and most of them were isolated anti-HBc pattern. We speculate that impaired immune system of chronic HD patients might contribute to negative HBsAb, which allowed HBV to replicate.

Routine blood vessel punctures and extracorporeal circulation are risk factors for horizontal transmission. The degree of transmission risk depends on the DNA level of infected patient. Even though our patient remained low DNA level, it would speculate that HBV-DNA level in chronic HD patients could increase over quantitative PCR sensitivity. With regard to infectious control, the screening of HBV-DNA should be implemented for HD patients (4). Limiting the patients with isolated anti-HBc pattern may be considered reasonable. We should recognize the presence of OBI patients under dialysis.

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